

## REMARKS

In the Office Action, the Examiner rejected claims 1-5, 9-16, and 24-25 under 35 U.S.C. §102(e) as being anticipated by the United States Patent 6,334,205 issued to Iyer, et al. (hereinafter “Iyer”). The Examiner also rejected claims 6-8, 17-20, and 22-23 under 35 U.S.C. §103(a) as being unpatentable over Iyer in view of the United States Patent 6,587,990 issued to Andreev, et al. (hereinafter “Andreev”). Applicants have amended claims 1-3, 6, 8-12, 14, 17, 19, and 25. The amendments are made for reasons of clarity and not for reasons of patentability. Applicants do not surrender any equivalents of the amended claims. Applicants have also canceled claims 15-16 and 22-24. Applicants have also added claims 26-33. Therefore, claims 1-14, 17-21, and 25-33 remain pending in this application.

### **I. Rejection of Claim 1 under §102(e)**

In the Office Action, the Examiner rejected claim 1 under §102(e) as being anticipated by Iyer. Claim 1 recites a data storage structure stored on a computer-readable medium. The data storage structure stores several combinational-logic sub-networks. A particular sub-network includes a first circuit for performing a first output function that produces a first result outside the sub-network and a second circuit for performing a second output function that produces a second result outside the sub-network. The first circuit receives as an input the second result produced by the second circuit. The particular sub-network is stored based on a set of indices derived from the two or more output functions performed by the sub-network. The set of indices is used to retrieve the sub-network from the data storage structure.

For at least the following two reasons, Applicants respectfully submit that Iyer does not disclose, teach, or even suggest the method of claim 1. *First*, Iyer does not disclose, teach, or even suggest storing the particular sub-network based on a set of indices derived from at least the first and second output functions. In the Office Action, the Examiner cited the signatures and

signature tables of Iyer, specifically column 8, lines 51-54 and column 9, lines 1-5 where “[a] signature is a numerical representation that differentiates matches based on functionality... for any type of signature table a simple function can be used utilized to quickly identify cells in a technology library that are potential candidates for covering a portion of logic”. However, the cited signatures and signature tables are derived from only a single output function and not the two or more output functions as recited in claim 1. Column 9, line 1 of Iyer explicitly states “the use of signature tables to represent each function” [emphasis added].

Moreover, the Examiner has not cited any other sub-networks that are stored based on indices derived from two or more output functions of the sub-network. In fact, Applicants respectfully submit that the sub-networks of Iyer used to replace circuit elements within a netlist only perform a single output function or only replace a single output function of the netlist. Specifically, column 7, lines 63-64 and column 8, lines 1-2 of Iyer recite “[a]t level 2 the NOR is selected, implementing the function for output y... The implicit cloning is seen in the selection of the XNOR for output z and NOR for output y.” Accordingly, Applicants respectfully submit that Iyer does not disclose, teach, or even suggest storing the particular sub-network based on a set of indices derived from at least the first and second output functions.

*Second*, Applicants respectfully submit that Iyer does not disclose, teach, or even suggest a stored sub-network having a first circuit with a first output outside the sub-network and a second circuit having a second output outside the sub-network, where the first circuit directly or indirectly receives as an input the second result produced by the second circuit. In the Office Action, the Examiner has cited Figure 2B of Iyer to disclose the sub-network structure. However, nowhere within the cited figure does one circuit receive an input from the output of the other circuit. Both circuits receive the same two inputs “a” and “b”. Accordingly, Applicants respectfully submit that Iyer does not disclose, teach, or even suggest a stored sub-network

having a first circuit with a first output outside the sub-network and a second circuit having a second output outside the sub-network, where the first circuit directly or indirectly receives as an input the second result produced by the second circuit.

In view of the foregoing remarks, Applicants respectfully submit that the cited references do not render claim 1 invalid. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 1.

## **II. Rejection of Claims 2-11 and 25 under §103(a)**

In the Office Action, the Examiner rejected claims 2-5, 9-11, and 25 under §102(e) as being anticipated by Iyer. The Examiner also rejected claim 6-8 under §103(a) as being unpatentable over Iyer in view of Andreev. Claims 3-11 and 25 are directly or indirectly dependent on claim 2. Claim 2 recites a data storage structure stored on a computer-readable medium. The data storage structure stores several combinational-logic sub-networks. A particular sub-network includes a first circuit for performing a first output function that produces a first result outside the sub-network and a second circuit for performing a second output function that produces a second result outside the sub-network. The first circuit receives as an input the second result produced by the second circuit. The particular sub-network is stored based on a parameter derived from the two or more output functions of the particular sub-network. The parameter is used to retrieve the particular sub-network from the data storage structure.

In the Office Action, the Examiner rejected claim 2 along the same rationale as claim 1. Therefore, as argued above with regards to claim 1, Applicants respectfully submit that Iyer does not disclose, teach, or even suggest storing the particular sub-network based on a parameter derived from at least the first and second output functions. Similarly, Applicants respectfully submit that Iyer does not disclose, teach, or even suggest a sub-network having a first circuit with a first output outside the sub-network and a second circuit having a second output outside the

sub-network, where the first circuit directly or indirectly receives as an input the second result produced by the second circuit, as argued above with regards to claim 1.

In view of the foregoing remarks, Applicants respectfully submit that the cited reference does not render claim 2 invalid. Given that claims 3-11 and 25 are dependent on claim 2, Applicants respectfully submit that these claims be allowable over the cited reference for at least the same reasons that were provided above for claim 2. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 2-11 and 25.

### **III. Rejection of Claims 12-14 and 17-21 under §103(a)**

In the Office Action, the Examiner rejected claims 12-14 under §102(e) as being anticipated by Iyer. The Examiner also rejected claims 17-21 under §103(a) as being unpatentable over Iyer in view of Andreev. Claims 13-14 and 17-21 are directly or indirectly dependent on claim 12. Claim 12 recites a sub-network record management system that is stored on a computer-readable medium. The sub-network record management system includes a data storage structure that is stored on a computer-readable medium. The data storage structure stores several combinational-logic sub-networks. A particular sub-network includes a first circuit for performing a first output function that produces a first result outside the sub-network and a second circuit for performing a second output function that produces a second result outside the sub-network. The first circuit receives as an input the second result produced by the second circuit. The particular sub-network is stored based on a parameter derived from the two or more output functions of the particular sub-network. The parameter is used to retrieve the particular sub-network from the data storage structure. The sub-network record management system also includes a data access manager that identifies and retrieves sub-networks from the data storage structure.

In the Office Action, the Examiner rejected claim 12 along the same rationale as claim 1. Therefore, as argued above with regards to claim 1, Applicants respectfully submit that Iyer does not disclose, teach, or even suggest storing the particular sub-network based on a parameter derived from at least the first and second output functions. Similarly, Applicants respectfully submit that Iyer does not disclose, teach, or even suggest a sub-network having a first circuit with a first output outside the sub-network and a second circuit having a second output outside the sub-network, where the first circuit directly or indirectly receives as an input the second result produced by the second circuit, as argued above with regards to claim 1.

In view of the foregoing remarks, Applicants respectfully submit that the cited references do not render claim 12 invalid. Given that claims 13-14 and 17-21 are dependent on claim 12, Applicants respectfully submit that these claims be allowable over the cited reference for at least the same reasons that were provided above for claim 12. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 12-14 and 17-21.

#### **IV. New Claims 26-33**

In this Amendment, Applicants have added new claims 26-33. Applicants respectfully submit that claims 26-33 are fully supported by the specification. Claims 26-29 are directly or indirectly dependent on claim 1. Claim 30 is a new independent claim with dependent claims 31-33. Accordingly, Applicants respectfully submit that claims 26-33 are in condition for allowance.

## CONCLUSION

In view of the foregoing, it is submitted that all pending claims, namely claims 1-14, 17-21, and 25-33 are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

Respectfully submitted,

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